

# 2025 Company Profile

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A New Dimension of Motion Control

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DMM Technology Corp. constantly strive to improve its product performance and reliability. As such, the contents and information in this manual may be changed without notice to reflect corrections, improvements or changes to the product. Refer to the DMM website to download latest version of this manual.

"2025 marks an epoch year for us. Our dedication to product development is stronger than any other year. We plan to release many innovative products along with features and reliability updates to existing technologies. This along with various infrastructure and branding updates, we hope to drive the industry forward even more."

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With over 30-years of motion control history, DMM's servo control design and products have been installed on hundreds of thousands of machines all over the world.

Since the beginning, our sole focus has always been providing the most easy to use and reliable motion control product. At the core, we are an extremely intelligent and focused engineering company centered around AC servo motion control products. We work closely with our customers everyday to provide the optimal solution to any application. With unprecedented turnaround and delivery times.

1992-2024 Logo:



Dynamic Motor Motion Technology Corporation

2025 New Logo:



# **Product Heritage**

Innovation and dedication in Research and Development over the years.



Original DYN servo control and encoder technology applied on CNC Embroidery machine in Japan





1992

First ever DYN servo drive prototype with 14-bit absolute encoder





DYN servo control deployed on ventilator



DYN2 servo drive developed with performance and improvements

1995



DYN2 servo drive on 2 axis on XY saw mill cutter 1998

Development and release of DTPU motion profile and DYN232M protocols

First commercial sale of DYN2 servo drive and motor system.

New ABS series 16-bit absolute encoder introduced. DST and DHT servo motor series introduced with



2010

new 16-bit encoder.



DSN Incremental Encoder Introduced New DYN2-TL and T1 servo drives released with 16-bit encoder feedback.





2012 Modbus RTU and CAN

Modbus RTU and CA protocols released





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# Value of Our Work

The essential goal at DMM is to provide the highest quality AC servo drive and motor products to advance human machinery and manufacturing capabilities. We are extremely proud of the work we have done so far to contribute to this. We hope to share our scientific and engineering capabilities even more with our customers to explore the next dimension of motion control.



#### Our Core Values:

- Reliable Consistent Production and Performance
- Accessible Cost Effective, Easy To Use, In Stock
- Modern Up to Date With Latest Technology

With any technology or products that we develop, we always keep the above 3 core values as the center goal.

Whether it's a standard off-the-shelf product or a custom proprietary design, we ensure these 3 values are always met. Every application is different, it is our responsibility to make sure our drives and motors are optimized in every way possible.

# Reliability in Design and Manufacturing

We implement countless design measures to improve reliability such as oversizing critical components and implementing fail-safe circuits and error checks. Manufacturing is closely monitored in-house with standards following latest ISO 9001 guidelines.



### 99% Production Pass Rate

95% On-Time Order Fulfilment

95% Application Success on First Install

<1% Return/Warranty Tickets

# Parts in Stock, Quick Commissioning

All our standard part number products are stocked at the main DMM facility or at our distributor facilities. We have tens of thousands of part numbers in stock ready to ship. The software is easy to use and we have endless documentation and video instructions.





# **Engineering for the Latest Advancements**

Technology moves quickly. We ensure that our products are compatible with the latest advancements like Robotics and AI. Our strong engineering power allows us to pivot our designs to use the latest semiconductor technology.







# **Application Examples**

Wide range of applications across different industries.



# Machine Tool / CNC

CNC Mill, Lathe, Router, Laser Waterjet. The majority of our applications is in CNC machines across small and large OEM companies. Our products are a time proven success on CNC applications. Easy to install and compatible with a variety of controllers. Pulse/Analog/ EtherCAT control is most commonly used.



# Automation

The heart of our products revolves around Automation. Whether it's pick and place, conveyour, feeding or cutting, we bring unmatched value to any process. Our servo drives are extremely versatile with built-in position, speed and torque control capabilities, as well as changing of control modes on the fly.



# Military / Defence

Our servo drives and motors are used actively on a number of defence applications including satellite positioning, component manufacturing, simulators and process automation. The robustness and reliability of our designs is perfectly suited for this industry. For over 30 years, our customers have trusted us with their most performance critical applications. We strive to minimize downtime, ensure efficiency, and resolve issues quickly. Reliable support enhances productivity, fosters trust, and helps our customers adapt to evolving technology, making it a key factor in operational success.



# Automotive

Some of the biggest automotive manufacturers utilize our drives and motors for various production work including laser engraving, assembly automation, dispensing and testing. Shown in the picture is a DHT 750W brake motor used for brake rotor testing for an IndyCar<sup>™</sup> racing team.



# Marine

Our focus on robustness and implementing high IP rating products makes us suitable even in the most extreme environmental conditions. Our DC input servo drives allows convenient installation on battery and generator power. Shown on the left is a winch powered by DMM 400W and 750W motors for Marine process and research.



# **Consumer Electronics**

The low cost and simplicity of our products makes them suitable even for consumer applications. Our drives and motors are installed in Home Automation and various Sports Science applications. Shown on the left is a smart home fitness machine utilizing our 750W motors to generate resistance for fitness.



# Partner Profile

Wide range of applications across different industries.

# Thermo Fisher







### Thermo Fisher

Thermo Fisher uses DMM servo drives across various production and testing machines.

### 3M

DMM servo drives and motors are used across various 3M facilities for testing and production processes.

### Automotive

DMM products are used across various automotive plants around the globe. From dispensing to feeding to marking.

### Airboss Defense

AGD is a survivability solutions provider for military, first responder, and healthcare professionals worldwide.

# <2,500 Solutions Done!

For over 30 years, our customers have trusted us with their most performance critical applications. We pride ourself in being a key partner in their success. We ensure our team works with each application with the highest care and understanding for the end goal.

# Honeywell

### Honeywell

Across Honeywell, DMM products are used for automation cells and testing equipment.



### IndyCar™

Various IndyCar teams trusts DMM motors for production and testing of critical race car components such as brakes and wheels.

#### PAC Machinery More experience. Better choices.



# PAC Machinery

DMM products are used across PAC Machinery and subsidiary for sealing and feeding applications.

### USNR

USNR is the world's largest, most comprehensive supplier of equipment and technologies for the wood processing industry.



# *C* ELLSWORTH





### Laser Marking Technologies.

Leader in laser marking and engraving CNC technology. Latest technology in DPM (Direct Part Marking), metal marking, laser engraving and laser cutting.

### Ellsworth Adhesives

Ellsworth Adhesives is a global corporation specializing in the distribution of specialty chemicals and equipment.

### SMTmax

SMTmax's focus is in the development, manufacturing and marketing of SMT tools and equipment for prototyping and production.

DESIGNETICS

### Telesis

Telesis Technologies, Inc. creates state-of-the-art laser marking technologies designed in permanent part marking applications.





### Sadler's Wells

DMM drives and motors are used for lighting and special effects for The National Ballet of Canada performances.

### Bell-Everman

Bell-Everman provides linear motion control technologies incorporated into a wide variety of automation and metrology systems.

### Designetics

Serving a global clientele, Designetics pioneers precision and innovation in fluid dispensing equipment and systems.

### TIFFANY & CO.

# Tiffany & Co.

DMM servo drives and motors are used across Tiffany & Co. for mass production of jewellery molds.



# Fast Response

Whether it's a sales or technical inquiry, we strive to respond to all emails and phone calls with in 24 hours. We actively ensure our emails and phone lines are closely monitored to make sure every request is handled as fast as possible.



# Optimized

We always make sure the right product is selected for the application. Based on careful calculations and past experiences, we select the most suitable drive and motor. If something on our catalog doesn't fit the bill, we will work to provide a custom solution.



# **Quick Delivery**

We fulfil orders with minimal lead times and even allocate inventory for time sensitive deliveries. This allows our partners to lower carrying costs and improve operation cash Our sales partners across the globe is dedicated to sales and technical service of our products. We ensure each sales partner is assigned with a dedicated team to guarantee quick turnaround for any requests.



# **Distribition Network**

By leveraging the expertise and capabilities of our distributors network, DMM can better streamline operations, reduce costs, and accelerate time-to-market for our customers around the world.



# Products





DMM manufacturers a variety of servo drives for all applications. We focus on market needs and ensure that our products are suitable for every application area. Versatility is also a focus, the DMMDRV program is utilized across the servo drive product line to harmonize and simplify the testing and tuning of the servo drive no matter the specific drive used.

Product Series:	DYN2	DYN2X (R)	DYN4	DYN5
Picture				
Power Input	24~75VDC	24~100VDC, 24VDC Aux.	110~2 Single/Th	40VAC aree Phase
Motor Power	50W~1kW	50W~5kW	50W~2kW	50W~3kW
Servo Mode	Posi	tion/Speed/Torque (	Real-Time Mode Switc	hing)
Communication	Pulse, Analog RS232, USB, CAN, Modbus RTU RS485	Pulse, Analog RS232, USB, Modbus TCP EtherNet/IP, EtherCAT	Pulse, Analog RS232, USB, CAN, Modbus RTU RS485	Pulse, Analog RS232, USB, Modbus TCP EtherNet/IP, EtherCAT
STO	No	Optional	No	Optional
Dual-Loop	Yes	Optional	No	Optional
1/0	Inputs - Pulse, Ana- log, Enable Outputs - Alarm, OnPosition, Index/ Home	Inputs - Pulse, Analog, Enable, Hold, Reset, Home Outputs - Alarm, OnPosition, Index/ Home, Ready, Brake	Inputs - Pulse, Analog, Enable, Hold, Reset, Home Outputs - Alarm, OnPosition, Index/ Home, Ready, Brake	Inputs - Pulse, Analog, Enable, Hold, Reset, Home Outputs - Alarm, OnPosition, Index/ Home, Ready, Brake
Encoder Option	16-bit Absolute Single or Multi-Turn	16-bit or 20-bit Single or Multi-Turn	16-bit Absolute Single or Multi-Turn	16-bit or 20-bit Single or Multi-Turn
Braking Resistor	No	Yes	Yes	Yes
IP Rating	IP10	DYN2X - IP10 DYN2XR - IP65	IP10	IP10
Dimension (Approx.)	32x85x85mm [WxHxD]	Without Heat Sink 35x207x110mm With Heat Sink 75x207x110mm [WxHxD]	65x160x165mm [WxHxD]	L01 Frame (<400W) 40x160x172mm H01 Frame (<=1kW) 65x160x172mm T01 Frame (<=2kW) 90x160x172mm TS01 Frame (<=3kW) 90x160x172mm [WxHxD]

See Page 26 for Detailed Specifications



# DYN1 SERIES Integrated AC Servo System



New for 2025 is the new DYN1 Integrated AC servo system. By combining our latest technology into a compact package, the DMM solution has never been easier to use. With an IP65 enclosure and shaft seals as standard, the DYN1 solution can easily be installed in any application with ease.



# Simplify installation and cabling. Reduce cabinet space requirement. Distributed Control.

Cabling requirements are greatly simplified by eliminating motor power and encoder cables from the drive to the motor. In doing so, cost and parts requirement for cabling is cut by half. Robotic grade high flexible cables are offered as plug and play from the controller to the DYN1 in various lengths.

All standard features such as STO and all Ethernet communication types are supported. Integrated ethernet switching technology makes Ethernet communications even easier than any other competitor product.

The motor sizes offered follow existing DMM specifications for easiest transition from traditional systems. Up to 1kW motor size is available in convenient mounting sizes. The motor shaft, connectors and all seams are sealed with high density rubber gaskets.

Model#	DYN1-640	DYN1-57N	DYN1-880	DYN1-86M	DYN1-86N	DYN1-86H		
Power Input			24~7	5VDC				
Motor Power	40	WC		750W				
Rated/Peak Torque	1.27/3	.82Nm		2.7/7.2Nm		4/12Nm		
Rated/Peak Speed*1	3000/5	000rpm		1500/3000rpm	ı			
Rotor Inertia	0.42 (0.51)	0.42 (0.51)	2 (2.3)	2.45 (2.94)	2.45 (2.94)	3.7 (4.2)		
(Brake)	kg-cm^2	kg-cm^2	kg-cm^2	kg-cm^2	kg-cm^2	kg-cm^2		
Framo / Shaft	□60mm	□60mm	□80mm	⊔86mm	⊔86mm	⊔86mm		
	φ14mm	φ6.35mm	φ19mm	φ14mm	φ12.7mm	φ14mm		
Servo Mode		Position/Spe	ed/Torque (	Real-Time Mod	e Switching)			
Communication	Pu	lse, Analog, RS	232, USB, Moo	lbus TCP, Ethei	Net/IP, EtherC	AT		
Encoder Option			16-bit Absolu	te Single Turn				
1/0		Inputs - Pulse, Analog, Enable						
1/0	Outputs - Alarm, OnPosition, Index/Home							
STO			Opti	onal				
IP Rating		IF	65, Shaft Seal,	, Rubber Gaske	ts			

### SPECIFICATIONS



### See Page 29 for Detailed Specifications

#### SKU# 1145-1988

The servo motors manufactured by DMM is categorized by frame size, inertia class and IP rating. We offer a wide variety of motors for any application. Motors are purpose built for high/low inertia that can be utilized across various applications from high cycle time robotics to low cycle time conveyour feeding.

### **DHT Series**



- NEMA Flange and Shaft Dimension
- Medium Inertia for low duty cycle, High Load
- 60/150/220VAC Rated Voltage
- Oil seal on shaft as standard, IP65
- CE Certification
- 16-Bit encoder as standard, 20-bit optional

Standard Model Number	Flange Size	Rated Power	Rated Voltage	Rated Torque	Peak Torque	Rated Current	Peak Current	Rated Speed	Peak Speed	Rotor Inertia (Brake)
Units:	mm	W	V	Nm	Nm	А	А	kg-cm <sup>2</sup>	min <sup>-1</sup>	kg-cm <sup>2</sup>
86L-DHT-A6TD1	NEMA34	250	60	0.8	2.4	6.25	19.8	3000	5000	0.91
57N-DHT-A6TD1	NEMA23	400	60	1.27	3.82	8.4	21.0	3000	5000	0.426 (0.511)
86N-DHT-A6MD1	NEMA34	750	150	2.4	7.2	7.2	21.5	3000	5000	2.45 (2.94)
86M-DHT-A6MK1	86mm	750	150	2.4	7.2	7.2	21.5	3000	5000	2.45 (2.94)
86H-DHT-A6MK1	86mm	1000	150	4.0	12.0	8.3	24.9	3000	5000	3.7 (4.2)
A15-DST-A6HK1	NEMA42	1300	220	5.0	15.0	6.0	18.0	1500	3000	6.3

\*1 These motors are 60V class motors and are only compatible with 110~120VAC input on the DYN5 servo drive main circuit R/S/T.

\*\* All motors except 86L can be optioned with +24VDC holding brake

### **DST Series**



- Metric Flange and Shaft Dimension
- Low/Medium Inertia for Medium Load
- 60/220VAC Rated Voltage
- Oil seal on shaft as standard, IP65
- Low Ripple, Low Cogging Torque
- CE Certification
- 16-Bit encoder as standard, 20-bit optional

Standard Model Number	Flange Size	Rated Power	Rated Torque	Peak Torque	Rated Current	Peak Current	Rated Speed	Peak Speed	Rotor Inertia (Brake)
Units:	mm	W	Nm	Nm	A	А	kg-cm <sup>2</sup>	min <sup>-1</sup>	kg-cm <sup>2</sup>
405-DST-A6HK1	40	50	0.16	0.48	1.0	2.1	3000	5000	0.036 (0.044)
410-DST-A6HK1	40	100	0.32	0.96	0.84	2.9	3000	5000	0.063 (0.076)
620-DST-A6HK1	60	200	0.64	1.91	1.9	6.8	3000	5000	0.232 (0.278)
640-DST-A6HK1	60	400	1.27	3.82	2.6	8.3	3000	5000	0.426 (0.511)
880-DST-A6HK1	80	750	2.39	7.16	4.2	12.6	3000	5000	2 (2.3)
11A-DST-A6HK1	130	1000	4.4	12.0	5.3	15.9	1500	3000	8.5 (10.2)
115-DST-A6HK1	130	1300	8.27	23.3	8.6	25.8	1500	3000	18.9 (21.74)
120-DST-A6HK1	130	1800	11.5	28.7	10.7	32.1	1500	3000	23.8 (27.37)

\* All motors can be optioned with +24VDC holding brake



### **DXT Series**





- Low/Medium/High Inertia Option 220VAC Rated Voltage
- Oil seal on shaft as standard, IP65
- Ultra Low Ripple, Ultra Low Cogging Torque
- Peak 6000rpm speed
- UL/CSA/CE Certification
- 16-Bit encoder as standard, 20-bit optional

Model Number	Flange Size	Inertia Class	Rated Power	Rated Torque	Peak Torque	Rated Current	Peak Current	Rated Speed	Peak Speed	Rotor Inertia (Brake)
Units:	mm		W	Nm	Nm	А	А	kg-cm <sup>2</sup>	min <sup>-1</sup>	kg-cm <sup>2</sup>
405-DXT-A6HK1	40	Low	50	0.16	0.48	1	3	3000	6000	0.022 (0.028)
410-DXT-A6HK1	40	Low	100	0.32	0.95	0.9	2.7	3000	6000	0.041 (0.047)
620-DXT-A6HK1	60	High	200	0.64	1.91	1.6	4.8	3000	6000	0.42 (0.48)
640-DXT-A6HK1	60	High	400	1.27	3.81	2.6	8.1	3000	6000	0.67 (0.73)
880-DXT-A6HK1	80	High	750	2.39	7.16	4.3	14	3000	5000	1.51 (1.64)
86M-DXT-A6HK1	86	Medium	750	2.39	7.16	3.75	11.25	3000	3800	2.26 (2.39)
11A-DXT-A6HK1	130	Medium	1000	4.77	14.31	5.1	15.3	2000	2800	6.26 (6.96)
115-DXT-A6HK1	130	Medium	1500	7.16	21.49	7.3	21.9	2000	2800	8.88 (9.58)
120-DXT-A6HK1	130	Medium	2000	9.55	28.65	9	27	2000	2500	12.14 (12.84)
130-DXT-A6HK1	130	Medium	3000	14.32	42.96	13.7	41.1	2000	2500	17.92 (18.62)
185-DXT-A6HK1	130	High	850	5.39	13.8	7	18.1	1500	3000	13.34 (14.04)
113-DXT-A6HK1	130	High	1300	8.34	23.3	11.4	32.4	1500	3000	20.07 (20.77)
118-DXT-A6HK1	130	High	1800	11.5	28.7	14.8	37.4	1500	3000	26.66 (27.36)

\* All motors can be optioned with +24VDC holding brake

### **DSS** Series





- 220VAC Rated Voltage
- Stainless steel/IP69K (IEC/EN 60529 compliant)
- CE, UL, CSA Certification
- Planetary or Worm Gearbox option
- 16-Bit encoder as standard, 20-bit optional

Model Number	Flange Size	Inertia Class	Rated Power	Rated Torque	Peak Torque	Rated Current	Peak Current	Rated Speed	Peak Speed	Rotor Inertia	Gearbox Option
Units:	Φmm		W	Nm	Nm	А	А	min <sup>-1</sup>	min <sup>-1</sup>	kg-mm <sup>2</sup>	
100-DSS-A6HK1	90	Low	94	0.3	1.5	0.67	3	3000	6000	28.3	Planetary or
200-DSS-A6HK1	90	Low	180	0.58	3.6	1.4	8	3000	6000	76.2	Worm Gear
350-DSS-A6HK1	90	Low	345	1.1	6.9	2.5	14.7	3000	6000	134	
750-DSS-A6HK1	120	Low	740	2.35	7.1	3.7	23	3000	6000	412	Up to 100:1 ratio



One of the industry's first all-in-on solution for AGM/AMR robots. The compact design and comprehensive features of the DPV platform makes for optimal cost and space savings. Programming and commissioning the DPV is extremely simple just like our servo drive. Just plug in the power and control and it's ready to



**Turn-Key Vehicle Drive Solution** - Servo drive, motor, encoder, planetary gearbox and wheel is all built-in. User only need to connect DC input power and communication to the DVP unit. All in one compact package.

• **High Resolution Control** - Existing market proven DMM servo drive control is used. The resolution of the encoder is 65,536ppr at the motor with 1Mhz torque control loop and real-time tuning algorithm ensures smooth performance.

**Integrated Safety** - STO, FSoE, integrated brake, integrated regenerative circuit ensures safe operation. Dedicated safety circuit and connectors for reliable safety operation

• Versatile Performance - The motor size, brake option and gearbox ratio can all be selected to fit every vehicle needs. Multiple mounting options allow flexible product integration.

### SPECIFICATIONS

Model#	DVP-75	DVP-100	DVP-160					
Wheel Diameter	75mm	100mm	160mm					
Supply Voltage	24~100VDC	24~100VDC	24~100VDC					
Motor Power	200W or 400W	750W or 1kW	1.5kW~2kW					
Gear Ratio Option	9,	9, 12, 15, 16, 20, 25, 32, 40, 64						
Peak Motor Speed	5,000rpm	5,000rpm	3,000rpm					
Max Payload *1	625kg	883kg	2,200kg					
Max Speed *2	2.18m/s	2.9m/s	2.79m/s					
Max. Continous Torque	76.40Nm	144.38Nm	691.84Nm					
Max. Peak Torque *1	229.81Nm	433.15Nm	1,726.59Nm					
Acceleration*3	3.5m/s <sup>2</sup>	3m/s <sup>2</sup>	2.3m/s <sup>2</sup>					
Encoder Resolution	65,536p	65,536ppr Absolute Position (At motor shaft)						
Communication Option	Pulse, Analog, Modb	Pulse, Analog, Modbus TCP, EtherCAT (CoE402), EtherNet/IP, CANbus						
Environment	IP54, 1.5G Vibration, -20 ~	65°C Operating Temperature	e, 95RH% (no dew) Humid-					

\* All Specifications calculated at one drive wheel per vehicle

\*1 Max Load, Max Continuous Torque and Max Peak Torque calculated at largest motor with largest reduction (64:1), also considering 94% gearbox efficiency

\*2 Max speed calculated at peak motor speed with lowest reduction (9:1)

\*3 Acceleration calculated at 0.5 Max Payload







The DPG series planetary gearbox delivers both **high performance and user-friendly operation**. Designed for seamless integration, it pairs directly with DST and DXT series servo motors in matching frame and shaft sizes, ensuring quick and easy installation.

Featuring a backlash range of 8 to 15 arc-minutes and offers reduction ratios from 3 to 516:1 across single, double, and triple-stage configurations. Available in both straight/inline and right-angle designs, it provides versatile solutions for various applications.

### **SPECIFICATIONS - INLINE**

Standard Model Number XX Denotes Reduction Ratio	Flange Size	Available Reduction	Backlash	Rated Speed	Peak Speed	Efficiency	Environment
Units:	mm	Ratio	arc-min	rpm	rpm	%	
DPGS-40-S1-XX-08-00	40	3,4,5,8,10	<12			96	
DPGS-40-S2-XX-08-00	40	9, 12, 15, 16, 20, 25, 32, 40, 64	<15			94	
DPGS-40-S3-XX-08-00	40	60, 80, 100, 120, 160, 200, 256, 320, 516	<18			90	
DPGS-60-S1-XX-14-00	60	3,4,5,8,10	<8			96	
DPGS-60-S2-XX-14-00	60	9, 12, 15, 16, 20, 25, 32, 40, 64	<12			94	IP54
DPGS-60-S3-XX-14-00	60	60, 80, 100, 120, 160, 200, 256, 320, 516	<15		5000	90	Operating
DPGS-80-S1-XX-19-00	80	3,4,5,8,10	<8	3000	5000	96	Temperature
DPGS-80-S2-XX-19-00	80	9, 12, 15, 16, 20, 25, 32, 40, 64	<12			94	-25°C ~
DPGS-80-S3-XX-19-00	80	60, 80, 100, 120, 160, 200, 256, 320, 516	<15			90	90°C
DPGS-130-S1-XX-XX-00	130	3,4,5,8,10	<8			96	
DPGS-130-S2-XX-XX-00	130	9, 12, 15, 16, 20, 25, 32, 40, 64	<12	1		94	
DPGS-130-S3-XX-XX-00	130	60, 80, 100, 120, 160, 200, 256, 320, 516	<15	]		90	



### **SPECIFICATIONS - RIGHT ANGLE**

Standard Model Number XX Denotes Reduction Ratio	Flange Size	Available Reduction	Backlash	Rated Speed	Peak Speed	Efficiency	Environment
Units:	mm	Ratio	arc-min	rpm	rpm	%	
DPGL-60-S1-XX-14-00	60	3,4,5,8,10	<30			94	
DPGL-60-S2-XX-14-00	60	9, 12, 15, 16, 20, 25, 32, 40, 64	<35			92	
DPGL-60-S3-XX-14-00	60	60, 80, 100, 120, 160, 200, 256, 320, 516	<40			88	IP54
DPGL-80-S1-XX-19-00	80	3,4,5,8,10	<25			94	
DPGL-80-S2-XX-19-00	80	9, 12, 15, 16, 20, 25, 32, 40, 64	<30	3000	5000	92	Operating
DPGL-80-S3-XX-19-00	80	60, 80, 100, 120, 160, 200, 256, 320, 516	<35			88	-25°C ~
DPGL-130-S1-XX-XX-00	130	3,4,5,8,10	<25			94	90°C
DPGL-130-S2-XX-XX-00	130	9, 12, 15, 16, 20, 25, 32, 40, 64	<30	1		92	1
DPGL-130-S3-XX-XX-00	130	60, 80, 100, 120, 160, 200, 256, 320, 516	<35			88	

### ABS-16-00 / ABS-20-00 Absolute Encoder



- Non-contact magnetic sensor
- 46mm and 33mm diameter options
- Single-turn, 16-bit resolution
- Multi-turn, 32-bit total resolution (16bit Single + 16bit Multi)
- 100us data update frequency

The ABS-16 and ABS-20 encoders are independently developed by DMM for **optimal performance**, **rigidity and cost**. We combine traditional magnetic encoder sensors with modern calibration algorithms to achieve high resolution and accuracy.

The encoder is available as single-turn or multi-turn feedback with optional battery back-up.

- Open RS485 protocol for OEM applications
- Active sensor optimization high mounting tolerance, high noise immunity
- Standard RS485 4-Wire Interface using SN75176 or equivalent
- Proprietary 1.875Mbps 4-Byte communication protocol

### ABS-16-LP1

The same 16-bit ABS encoder is available in a Low-Profile package down to 9mm encoder thickness. Allowing installations into ultra-thin applications suchas Robotics.



### **ABS SPECIFICATIONS**

Model#	Resolution	Dimensions	Accuracy	Interface	Mounting Tolerance	Supply Power
ABS-16-00	16-bits / 65,536	46mm OD, 9mm Height				+5VDC / 150mA
ABS-16-01	Single-Turn	33mm OD, 9mm Height				150 mA Max.
ABS-16-MT1	Multi-turn, 32-bit total resolu- tion (16bit Single + 16bit Multi)	33mm OD, 9mm Height				+5VDC / 150mA 3.6VDC Battery Power off<1mA
ABS-20-00	20-bits / 1,048,576	33mm OD, 9mm Height	12-bits / 4096 /	RS485 Proprietary Protocol 1.875Mbps 100us Position Update Frequency	± 0.5mm Radial	+5VDC / 150mA
ABS-20-01	Single-Turn	33mm OD, 9mm Height	316 arc-		± 1mm Axial	150 mA Max.
ABS-20-MT1	Multi-turn, 32-bit total resolu- tion (20bit Single + 12bit Multi)	33mm OD, 9mm Height				+5VDC / 150mA 3.6VDC Battery Power off<1mA
ABS-16-LP1-EX	16-bits / 65,536	46mm OD 9mm Height	]			+5VDC / 150mA
ABS-16-LP1-CV	Single-Turn	50mm OD 9mm Height				150 mA Max.

# *DSN* Rotary Incremental Magnetic Encoder



DSN08



The DSN Series Rotary Encoders offers the highest level of rigidity and performance. By utilizing the same ABS absolute encoder technology, we can sample and generate optimized incremental encoder feedback. Featuring industry first auto synchronization tuning, this virtually **eliminates strict mounting requirements** of conventional rotary encoders.

The control processor actively calibrates the algorithm parameters to perfectly compliment the reading of each hall sensor IC induced by the rotor magnetic field. Data from each sensor is interpolated to generate a best-point reading. **Each encoder is always guaranteed to have the perfect mount and optimized performance.** 

### **DSN SPECIFICATIONS**

Model#	Resolution	Commutation	Accuracy	Interface	Mounting Tolerance	Dimensions	Supply Power
DSN- 05-RR-CC- PP-D-00	RR Denotes Resolution: 256 ~ 5,000	CC denotes Com- mutation Output. P=with commuta- tion R = without com-	12-bits / 4096 /	D: +5VDC Differen- tial Line Drive (RS422)	± 0.5mm Radial	46mm OD, 23mm Height IP00 PCB Exposed	+5VDC /
DSN- 08-RR-CC- PP-D-00	PPR Resolution [ 1024 ~ 20,000 CPR ]	mutation PP denotes com- mutation pole if applicable	0.088°7 316 arc- sec	ABZ Quadrature UVW commutation optional	± 1mm Axial	50mm OD, 24mm Height IP40 Enclosed	Max.

### Accuracy / Reliability Conformance of DMM Encoders

Encoder Accuracy is heavily tested



Magnetic Sensor error measured for calibration





Reliability against external magnetic field and electrical noise is optimized



# *DIPM* Intelligent Power Module



- Control / Power Topology Fully Isolated.
  2000Vrms insulation voltage
- 3-Phase 600V >100A IGBT inverter bridge
- Direct PWM control input. No external component requirements

The DIPM power module is at the heart of all DMM servo drives. Our original design for IGBT bridge and gate drivers allows us to achieve **optimal flexibility in performance and manufacturing** that can be utilized in other OEM applications.

Featuring integrated control hardware to **reduce switching loss and maximize efficiency**. Communication interface is simplified to reduce development time and integration cost. Unique power management algorithm maintains reliability without loss of performance.

- High efficient switching. Low power loss
- High DC bus voltage. High DC bus voltage up to +600VDC/High current
- Simple isolated signal interface
- Low thermal resistance

### SPECIFICATIONS

Maximum Ratings (Junction temperature Tj = 25°C)

#### Power Side

Symbol	Parameter	Condition	Ratings	Units
VCES	Collector - Emitter Voltage	Vgate = 15V	600	V
+IC	Collector Current	Tc = 25°C	50	А
1.10		Tc = 100°C	30	Α
IC Pulse	Collector Current Peak	Tc = 25°C	60	А
IF	Diode average forward current	Tc = 25°C	20	А
IF Pulse	Diode forward current	Tc = 25°C	50	А
Тј	Junction temperature		-20 ~ +150	°C
PC	Collector dissipation	Tc = 25°C	350	W

\* Tc = Chip temperature measured under the chips

### Electrical Characteristics (T = 25°C)

#### Power Side

Symbol Daramatar		Condition		Limits			Unite
Symbol	Farameter	Condition		Min.	Typical	Max.	Units
		Vento - 1EV	Tj = 25°C		2	2.5	V
VCE(Sal)	VCE(Sat) Collector, Emitter Saturation Voltage	vgale = 15v	Tj = 100°C		2.5		v
ton	Switching time				0.6	0.8	c
toff Switching time					0.6	0.8	μο
ICES	Collector off current	Tc = 25°C				10	mA

### Control Side

Symbol	Parameter Cond	Condition		Limits	Unite	
Symbol	Farameter	Condition	Min.	Typical	Max.	Units
VGATE	Gate input voltage		12.0	15.0	18.0	V
IGATE	Gate input current			100		mA
VLOGIC	Control input voltage		4.75	5.0	5.25	V
ILOGIC	Control input current			50.0		mA
Enab_, PWMA	All logic inputs	Logic High	3.0	5.0	5.25	V
PWMB, PWMC	All logic inputs	Logic Low	-0.1	0	2.0	V

#### **Control Side**

Symbol	Parameter	Condition	Ratings	Units
VGATE	Gate drive voltage	Applied between Vgate and GND	18	V
VLOGIC	Logic voltage	Applied between Vlogic and GND	5.25	V
PWMA PWMB PWMC Enab	PWM and Enable Input	Applied between inputs and GND	-0.1 ~ +5.25	V

### **Application Examples**

AC Servo Drive



Renewable Energy



VFD/Inverter



Home Appliance



### **Internal Function Block Diagram**



# BUILT-IN GATE DRIVER CIRCUIT

#### **Control Pinout**

Description
GND
Control side ground
PWMC
Control PWM for W phase
PWMB
Control PWM for V phase
PWMA
Control PWM for U phase
Enab_
Output enable, Active low
Tn
Thermal resistor output
VLOGIC
Control side +5VDC
VGATE
Control side +15VDC

### **Dimensions**



# AC SERVO DRIVE - SPECIFICATIONS

### **DYN2 AC Servo Drive**



Product Series:	DYN2	
Power Input	24~75VDC	
Motor Dowor	DYN2-T1:50W~200W	
Motor Fower	DYN2-TL: 400W~1kW	
Servo Mode	Position/Speed/Torque (Real-Time Mode Switching)	
Communication	Pulse, Analog	
Communication	RS232, USB, CAN, Modbus RTU RS485	
STO	No	
Dual-Loop	Yes	
I/O	Inputs - Pulse, Analog, Enable	
1/0	Outputs - Alarm, OnPosition, Index/Home	
Encoder Option	16-bit Absolute Single or Multi-Turn	
Braking Resistor	No	
IP Rating	IP10	

Dimensions in [mm]





24~75VDC Input



### **DYN4 AC Servo Drive**



110~240VAC Input

Product Series:	DYN4		
Power Input	110~240VAC		
Fower Input	Single/Three Phase		
	DYN4-L01 : 50W~400W		
Motor Power	DYN4-H01:750W~1kW		
	DYN4-T01:1kW~2kW		
Servo Mode	Position/Speed/Torque (Real-Time Mode Switching)		
Communication	Pulse, Analog		
communication	RS232, USB, CAN, Modbus RTU RS485		
STO	No		
Dual-Loop	No		
1/0	Inputs - Pulse, Analog, Enable, Hold, Reset, Home		
1/0	Outputs - Alarm, OnPosition, Index/Home, Ready, Brake		
Encoder Option	16-bit Absolute Single or Multi-Turn		
Braking Resistor	Yes		
IP Rating IP10			
65	165 Dimensions in [mm]		
◄ ──►			



### DYN2X







#### DYN2XR



Product Series:	DYN2XR			
Power Input	24~100VDC, 24VDC Aux.			
Motor Power	50W~5kW			
Servo Mode	Position/Speed/Torque (Real-Time Mode Switching)			
Communication	Pulse, Analog, RS232, USB, Modbus TCP, EtherNet/IP, EtherCAT			
STO	Optional			
Dual-Loop	Optional			
1/0	Inputs - Pulse, Analog, Enable, Hold, Reset, Home			
1/0	Outputs - Alarm, OnPosition, Index/Home, Ready, Brake			
Encoder Option	16-bit or 20-bit Single or Multi-Turn			
<b>Braking Resistor</b>	Yes			
IP Rating	DYN2XR - IP65			



### 24~100VDC Input

# AC SERVO DRIVE - SPECIFICATIONS

### **DYN5 AC Servo Drive**



de Switching)
erNet/IP, EtherCAT
Reset, Home
e, Ready, Brake
Turn





#### \*1 Rated and Peak Speed depends on DC voltage input

Model#	DYN1-640 DYN1-57N		DYN1-880	DYN1-86M	DYN1-86N	DYN1-86H	
Power Input			24~75VDC				
Motor Power	400W		750W			1000W	
Rated/Peak Torque	1.27/3	.82Nm		2.7/7.2Nm			
Rated/Peak Speed*1	3000/5	000rpm		1500/3000rpm		1000/2000rpm	
Potor Inertia (Brake)	0.42 (0.51)		2 (2.3)	2.45 (2.94)		3.7 (4.2)	
Rotor Inertia (Drake)	kg-c	m^2	kg-cm^2	kg-cm^2		kg-cm^2	
Frame / Shaft	□60mm	□60mm	□80mm	⊔86mm	⊔86mm	⊔86mm	
Traine / Share	Ф14mm	Φ6.35mm	Φ19mm	Φ14mm	Φ12.7mm	Ф14mm	
Servo Mode		Position/	Speed/Torque (	Real-Time Mode S	witching)		
Communication		Pulse, Analog	, RS232, USB, Moo	lbus TCP, EtherNet	t/IP, EtherCAT		
Encoder Option	16-bit Absolute Single Turn						
1/0	Inputs - Pulse, Analog, Enable						
1/0	Outputs - Alarm, OnPosition, Index/Home						
STO	Optional						
IP Rating	IP65, Shaft Seal, Rubber Gaskets						

Dimensions in [mm]

### DYN1-640 (400W) DYN1-57N (400W)



DYN1-880 (750W)







DYN1-86M (750W)

DYN1-86N (750W) DYN

DYN1-86H (1000W)



# AC SERVO MOTOR - SPECIFICATIONS

# **DHT Series**



### 86H - 1.0kW - 86mm



### A15 - 1.3kW - NEMA42





A15-DHT Connector Dimensions



A15-DHT Brake







# AC SERVO MOTOR - SPECIFICATIONS

### **DST Series**

### 405-DST - 50W - □40mm Frame



#### 410-DST - 100W - □40mm Frame



#### 620-DST, 640-DST - 200W,400W - □60mm Frame



A: Continuous Duty Zone B: Intermittent Duty Zone









### 11A-DST, 115-DST, 120-DST - 1.0kW, 1.3kW, 1.8kW - 130mm Frame





All Dimensions in [mm]

Model	Shaft S	Length L
11A-DST	Φ19h7	167
11A-DST Brake	Φ19h7	236
115-DST	Φ22h7	180
115-DST Brake	Φ22h7	248
120-DST	Φ22h7	193
120-DST Brake	Ф22h7	261

11A, 115, 120-DST Connector Dimensions









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### **DXT Series**

• 40mm Frame ( 50W , 100W, Low Inertia ) Model# 405-DXT, 410-DXT









Motor Model	Rated Power	Length LL	Length with Holding Brake LL(B)
405	50W	73	116.6
410	100W	88	131.6

#### 405-DXT ( 50W ) Low Inertia



410-DXT ( 100W ) Low Inertia



• 60mm Frame ( 200W , 400W, High Inertia ) Model# 620-DXT, 640-DXT

All dimensions in [ mm ]







Motor Model	Rated Power	Length LL	Length with Holding Brake LL(B)
620	200W	106.5	145.3
640	400W	128.5	167.3

#### 620-DXT ( 200W ) High Inertia













### 880-DXT (750W) High Inertia



Motor Model	Motor Model Rated		Length with Holding Brake LL(B)				
880	750W	137	175.3				

• 86mm Frame (750W, Medium Inertia) Model# 86M-DXT

All dimensions in [ mm ]



#### 880-DXT ( 750W ) High Inertia



Motor Model	Rated Power	Length LL	Length with Holding Brake LL(B)
86M	750W	147.5	182.7

### **DXT Series**

#### • 130mm Frame

All dimensions in [ mm ]

( 1000W, 1500W, 2000W, 3000W, Medium Inertia ) Model# 11A-DXT, 115-DXT, 120-DXT, 130-DXT

(850W, 1300W, 1800W, High Inertia) Model#185-DXT, 113-DXT, 118-DXT



With Holding Brake

Motor Model	Rated Power	Inertia Class	Length LL	Length with Holding Brake LL(B)		
11A	1000W	Medium	163.8	218.3		
115	1500W	Medium	183.8	238.3		
120	2000W	Medium	213.8	268.3		
130	3000W	Medium	263.8	318.3		
185	850W	High	153.3	195.9		
113	1300W	High	178.3	220.9		
118	1800W	High	203.3	245.9		



#### 11A-DXT ( 1000W ) Medium Inertia





### 185-DXT (850W) High Inertia



#### 118-DXT (1800W) High Inertia



# 115-DXT ( 1500W ) Medium Inertia











### **DSS Series**













Motor Speed [ rpm ]



#### Dimensions in [mm]

Dimension	A	В	с	D	Е	F	G	J	к	L	М	N	Ρ	Q	R	S	т	v	Mass
100-DSS-A6HK1	60	2.5	12	11	23	4	12.5	M4	10	196	M5	75	8	68	90	60	39	158	4.04kg
200-DSS-A6HK1	60	2.5	12	11	23	4	12.5	M4	10	201	M5	75	12	90	90	74	37	163	6.30kg
350-DSS-A6HK1	60	2.5	12	11	23	4	12.5	M4	10	251	M5	75	12	90	90	74	37	213	8.30kg
750-DSS-A6HK1	80	3	16	19	40	6	21.5	M6	16	258	M6	100	14	120	120	90	36	220	11.4kg



See DSS motor manual for specifications on gearbox options

# **DPV PLATFORM - SPECIFICATIONS**

Model#	DVP-75	DVP-100	DVP-160					
Wheel Diameter	75mm	100mm	160mm					
Supply Voltage	24~100VDC	24~100VDC	24~100VDC					
Motor Power	200W or 400W	750W or 1kW	1.5kW~2kW					
Gear Ratio Option	9,	, 12, 15, 16, 20, 25, 32, 40, 6	94					
Peak Motor Speed	5,000rpm	5,000rpm	3,000rpm					
Max Payload *1	625kg	883kg	2,200kg					
Max Speed *2	2.18m/s	2.9m/s	2.79m/s					
Max. Continous Torque	76.40Nm	144.38Nm	691.84Nm					
Max. Peak Torque *1	229.81Nm	433.15Nm	1,726.59Nm					
Acceleration*3	3.5m/s <sup>2</sup>	3m/s <sup>2</sup>	2.3m/s <sup>2</sup>					
Encoder Resolution	65,536ppr Absolute Position (At motor shaft)							
Communication Option	Pulse, Analog, Modbus TCP, EtherCAT (CoE402), EtherNet/IP, CANbus							
Brake Option	Holding Torque = Rated Torque of Motor Release Time = 35ms							
Wheel Load Capacity	500kg	625kg	1400kg					
Wheel Width	40mm	40mm	50mm					
Wheel Specification	Polyurethane tread, Hardness 75 Shore A, Cast Iron Core							
Environment	IP54, 1.5G Vibration, -20 ~ 65°C Operating Temperature, 95RH% (no dew) Humid-							

\* All Specifications calculated at one drive wheel per vehicle

\*1 Max Load, Max Continuous Torque and Max Peak Torque calculated at largest motor with largest reduction (64:1), also considering 94% gearbox efficiency

\*2 Max speed calculated at peak motor speed with lowest reduction (9:1)

\*3 Acceleration calculated at 0.5 Max Payload



A new dimension of Motion Control

VX1P2







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